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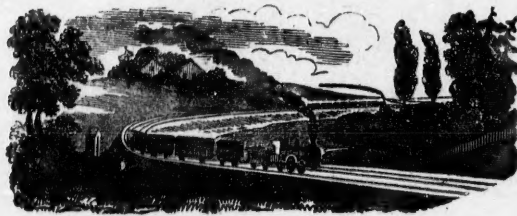
Ch. P. Readman

PHILOSOPHY
OF
RAILROADS,

PUBLISHED BY ORDER OF
THE DIRECTORS
OF THE
ST. LAWRENCE AND OTTAWA GRAND
JUNCTION RAILWAY COMPANY.

BY
THOS. C. KEEFER, C. E.

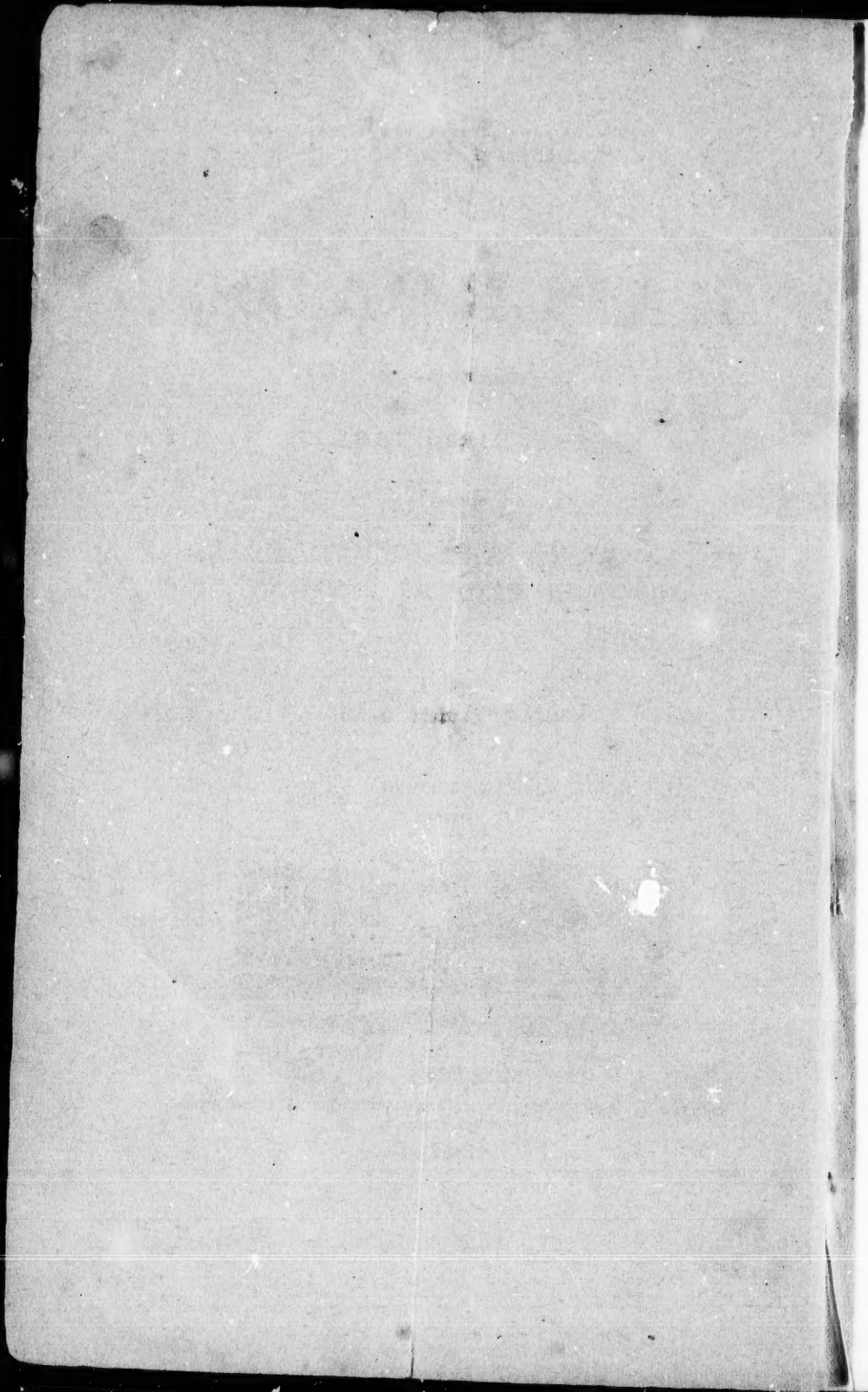
FOURTH EDITION.
REVISED.



MONTREAL:

PRINTED BY JOHN LOVELL, AT HIS STEAM-PRINTING ESTABLISHMENT,
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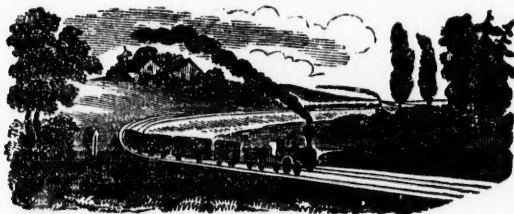
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This Pamphlet was first published about three years since in Toronto, and ran through three editions during the agitation of the Great Western, Simcoe, and Toronto and Kingston Railways; its influence in the promotion of which enterprises has been generally acknowledged.

It has had but a slight circulation in the Lower Province and upon the Ottawa, and therefore the Directors of the Ottawa and St. Lawrence Grand Junction Railway Company have determined to republish it in a revised form, believing that it will be found to be a valuable exponent of the influences of the Railway System generally—and will tend to awaken a stronger interest in the important enterprise which they have in hand.

INTRODUCTION.

OLD Winter is once more upon us, and our inland seas are "dreary and inhospitable wastes" to the merchant and to the traveller;—our rivers are sealed fountains,—and an embargo which no human power can remove is laid on all our ports. Around our deserted wharves and warehouses are huddled the naked spars,—the blasted forest of trade,—from which the sails have fallen like the leaves of the autumn. The splashing wheels are silenced,—the roar of steam is hushed,—the gay saloon, so lately thronged with busy life, is now but an abandoned hall,—and the cold snow revels in solitary possession of the untrodden deck. The animation of business is suspended, the life blood of commerce is curdled and stagnant in the St. Lawrence—the great aorta of the North. On land, the heavy stage labours through mingled frost and mud in the West,—or struggles through drifted snow, and slides with

uncertain track over the icy hills of Eastern Canada. Far away to the South is heard the daily scream of the steam-whistle,—but from Canada there is no escape: blockaded and imprisoned by Ice and Apathy, we have at least ample time for reflection—and if there be comfort in Philosophy may we not profitably consider the

PHILOSOPHY OF RAILROADS.

NEW commercial enterprises, however well supported by dry and accurate statistics, are not often undertaken upon imperfect information—through the representations of theorists or politico-economical writers—or even when supported by bright analogies, and the most authentic records of the success of similar undertakings amongst similar communities. It is true, that well-established systems become the subjects of stock-jobbing and speculation by parties ignorant of their uses or real value; but their origin and maturity are the work of the well-informed few, whose foresight has been rewarded frequently before it has been acknowledged. In older countries the feasibility of public projects and their value as speculations are more speedily ascertained than in our young and thinly populated Province, and any attempt to transplant a system, or found arguments for the latter from the experience of the former, is at once met with disparaging and “odious” comparisons. The intrinsic merit of the question,—the absolute instead of the comparative value of our own projects,—are not often inves-

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tigated, because the nature of such investigations are not familiar to us, while they have long since become unnecessary and are therefore not canvassed in those countries where an established system exists.

Thus it is with the Railway System in Canada. We see, and to our cost, feel its effects around us;—we acknowledge its importance, the great results it has achieved, and the substantial expression of public opinion in its favour in the hundreds of millions which have been freely devoted to its extension in other civilized countries. We have talked about it for years—we have projected a great deal, and done very little, because the public,—the real estate owners large and small,—have not taken up the subject. Our Representatives have lately acquitted themselves nobly in this matter, but they have rather led than followed public opinion, and have themselves been acted upon by a “glorious” minority, to whom the actual and efficient execution has hitherto been confined, and who have contended with the chilling influence of popular apathy, ignorance, and incredulity.

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An attempt to investigate the Railway System in its applicability to new countries,—to define its limitations by shewing where and why its application becomes justifiable,—to disseminate popular information upon a too unpopular subject, and turn a portion of that earnest and eager covetousness of foreign prosperity back upon our own neglected resources,—will it is hoped be received with public favour—or at least with public charity.

At the outset it may be objected that there is an insufficiency of disposable circulating capital in Canada, to construct a tithe of the length of projected Railways, and that *therefore* the discussion is premature. The premises will be admitted to any reasonable extent, but the conclusion, instead of the discussion is, we hope to show, premature.

The population, soil, and wealth of Canada are not in-

ferior to Vermont, New Hampshire, Michigan, Georgia, and other States which have Railways; and the local resources of some portions of our Province, where Railroads are wanting, are at least equal to those in Ohio and many other States where these advantages have been enjoyed for years. Whatever is or was the condition of the circulating capital in the States mentioned, they have *found a way* to build their roads. This we believe has been done through the energy and perseverance of the local proprietors of real estate, who have convinced capitalists that they could have no better security for their investments, than that contingent upon the certain increase of population, wealth, and traffic, in rising countries like our own;—and thus they have secured improvements from which the land is the first to benefit, and without which its value in Canada is stationary; and this too, under circumstances when to stand still is to recede. The projectors of the Welland Canal were not Rothschilds; yet the untiring perseverance of one gentleman secured the construction of a work which for importance has no parallel in America.

There is a greater amount of unemployed capital amongst our agricultural and trading population than is generally supposed; and of fixed capital and absolute wealth there is more than sufficient both to need and to warrant the construction of all the roads proposed. A very considerable class of the Stockholders in New England roads are farmers, with investments from £50 to £500.

Railway stocks, unlike most others, are a species of real estate immoveably attached to the soil, and have therefore become of late years favourite channels for investment with all classes of capitalists. Banks may fail,—commerce may languish or be partially diverted,—manufactures be rendered unprofitable,—even the earth may for a time refuse to many a return for the capital invested in it; but as long as there are men to profit or to

lose by speculations, there will be people to sustain a Railway; and if universal ruin be inevitable, *they* will be the last public works to succumb to the general prostration. The cart road is succeeded by the turnpike, this again by the macadam or plank roads, and these last by the Railway. The latter is the perfected system and admits of no competition—and this characteristic pre-eminently marks it out as the most desirable object for investment in the midst of an enterprising and increasing population.

With an *assessed* value of above one hundred and forty millions of dollars—with cultivated lands worth fifty millions of dollars, and an annual crop, valued at twenty millions of dollars, in Upper Canada alone,—with population, production and wealth, doubling in about ten years, we offer a security upon the industrial character and the increasing wants of a progressive people, for all judicious commercial investments. We therefore believe—although we could not borrow a dollar for any other purpose,—that as the unavoidable customers of a well placed Railway, we have only to secure its receipts to those from whom we ask assistance and take those necessary preliminary steps which none but ourselves can take, in order to obtain the capital required to construct our works. This can scarcely be contested from the experience of the past, because the value of Railway investment is of comparatively recent discovery—and is even now but partially appreciated. Did we not find it so difficult to foresee the inevitable future instead of looking backward, we must acknowledge that with the same future of past progress, there will have taken place in the natural order of things, *before* such works as we propose to consider *could be* brought into perfect operation, such an improved change as is now only demanded by the most incredulous in order to secure their sanction to a Railway system for Canada.

What we need most is that faith in the works themselves which will produce sufficient fruit to bring them within the munificent provisions of our late Railroad Act. It is to present something of the "substance hoped for," and the unseen evidence required to produce these works, that these remarks have been offered to the public.

The initiative must be taken by us: we cannot expect the accumulated capital of commerce or of older countries to seek out *our* investments. We must do as others do—lay our projects before the money holders, and shew our earnestness and confidence by taking stock to the extent of our means;—but, above all, we must inform ourselves and them fully of the grounds upon which we found our expectations. Zeal and enterprize, directed by a knowledge of our subject, are more rare and efficient commodities than the mere possession of capital; because they will carry capital and all other things with them.

Let us take a case of which Canada (we are proud and sad to say) presents more than one instance. A well cultivated district, in which all the lands are occupied (perhaps by the second generation) with or without water power, but situated twenty to fifty miles from the chief towns upon our great highway, the St. Lawrence, and without navigable water communication with it. The occupants are all thriving and independent farmers, the water power is employed only to an extent to meet their local wants, and the village is limited to the few mechanics, and the one store required for this rural district. The barter of the shopkeeper is restricted by the consumption of his customers, and he becomes the sole forwarder of the surplus product of the district. There is no stimulus for increased production—there are less facilities for it: the redundant population have all been accustomed to agriculture, and as the field for this is unrestricted, they move Westward to prevent a subdivision

of their homesteads, and to become greater landowners than their fathers. There exists the well known scarcity of labourers for the harvest, because there is no employment for them during the remainder of the year; and they have not yet been led by necessity to that subdivision of labour and that variety of employment which are the results of an increasing and more confined population. Each farmer has his comfortable house, his well stored barn, variety of stock, his meadows and his woodland; he cultivates only as much as he finds convenient, and his slight surplus is exchanged for his modest wants. Distance, the expense of transportation, and the absence of that energy which debt or contact with busier men should produce, have prevented any efforts to supply the commercial towns on the part of the contented denizens of our "Sleepy Hollow." To themselves, to the superficial observer, their district has attained the limit of improvement. If they have no water power, or one limited to the supply of the needful grist or saw mill, it is clear to their minds that they were never destined for a manufacturing people; and if they have abundant water power, their local market would not support one manufactory, while land carriage, want of people, money, and more than all, *information*, precludes the idea of their manufacturing for a distant market. It is still more evident, from their position, they are not to become a commercial people and build up large cities; they, therefore, jog along with evident self-satisfaction—the venerable churchyard is slowly filling up with tombstones—and the quiet residents arrive at the conclusion that they are a peculiarly favoured people in having *escaped* the rage for improvement. They are grateful that their farms have not been disfigured by canals or railroads, and the spirits of their sires troubled by the hideous screech of the steam-whistle.

We will now suppose, (we would we could more than

suppose), that two of our cities should be moved to unite by the iron bond of a Railway, which in its course will traverse the district just described. Excitement prevails in the "Hollow;"—sleep has deserted her peculiar people—the livelong night has passed in mutual contemplations of farms "cut up" or covered over,—visions of bloody skirmishes between "Far downs" and Corkonians,—of rifled gardens and orchards, of plundered poultry yards and abducted pigs. The probable mother of a possible child bewails her future offspring "drawn and quartered" on the rail by the terrible locomotive, and a whole hecatomb of cattle, pigs and sheep, are devoted by imagination to the insatiate Juggernaut. The Engineers who come to spy out the land are met with curses both loud and deep,—the laws of property are discussed,—the delinquent Member for the County denounced,—until a handsome Rodman, by well-timed admiration of Eliza Ann, the rural spokesman's daughter, succeeds in obtaining comfortable quarters for his party, with board, lodging, and washing, at 12s. 6d. per week. The work has commenced; the farmer is offered better prices for his hay and grain than he ever before received:—even milk and vegetables,—things he never dreamed of selling,—are now sought for; his teams, instead of eating up his substance as formerly in winter, are constantly employed, and his sons are profitably engaged in "getting out timber" for the contractors; he grows a much larger quantity of oats and potatoes than before,—and when the workmen have left, he finds to his astonishment that his old friend the storekeeper is prepared to take all he can spare, to send by the Railroad "down to town."

And now some of the "city folks" come out and take up a water privilege, or erect steam power, and commence manufacturing. Iron is bought, cut into nails, screws and hinges. Cotton is spun and wove, and all the

variety of manufactures introduced, because here motive power, rents and food are cheaper, and labour more easily controlled than in the cities, while transportation and distance have by the Railroad been reduced to a minimum. A town has been built and peopled by the operatives—land rises rapidly in value—the neglected swamp is cleared and the timber is converted into all sorts of wooden “notions”—tons of vegetable, grains, or grasses, are grown where none grew before—the patient click of the loom, the rushing of the shuttle, the busy hum of the spindle, the thundering of the trip-hammer, and the roaring of steam, are mingled in one continuous sound of active industry. While the physical features of our little hamlet are undergoing such a wonderful transformation, the moral influence of the iron civilizer upon the old inhabitants is bringing a rapid “change over the spirit of their dreams.” The young men and the maidens, the old men and the matrons, daily collect around the cars; they wonder where so many well-dressed and rich-looking people come from and are going to, &c.,—what queer machines those are which they see passing backwards and forwards. They have perhaps an old neighbour whose son had long since wandered off, and now they see him returned, a first class passenger, with all the prestige of broadcloth, gold chains, rings, gloves, and a travelled reputation: the damsels rapidly impress upon “the mind’s eye” the shapes of the bonnets, visites, &c., of that superior class of beings who are flying like angels over the country, and *drink in*, with wide-mouthed admiration, the transcendent splendour and indescribable beauty of “that ’ere shawl.” All are interested, all are benefited, *cuique suum*. Is he a farmer? he has a practical illustration of the superior cheapness of transportation by increasing the load—the cart is abandoned for the waggon—for he sees the Railroad, notwithstanding the great cost of the

cuttings, embankments, tunnels, bridges, engines, cars, and stations, carrying his produce for a less sum than his personal expenses and the feeding of his horses would amount to. Is he a blacksmith? he determines his son shall no longer shoe horses, but build engines. Is he a carpenter? he is proud of his occupation as he surveys the new bridge over the old creek. Even the village tailor gathers "a wrinkle," as he criticises the latest effort of Buckmaster or Gibb, whilst the unconscious advertiser is swallowing his coffee. Thus curiosity and emulation are excited and the results are discernible in a general predilection for improved modes. A spirit is engendered which is not confined to dress or equipage, but is rapidly extended to agriculture, roads, and instructive societies, and finally exerts its most powerful influence where it is most needed,—in the improved character it gives to the exercise of the franchise. This right is now enjoyed by too large a class, whose chief contact with public affairs has been limited to an occasional chat with ambitious retailers of dry goods, groceries, hardware, and political mysteries—or to a semi-annual sitting in a jury box, unconsciously absorbing all the virtuous indignation of some *nisi prius* wrangler, whose "familiar face" is shortly after presented to them at the hustings, generously proffering to defend or advocate anything for four dollars per diem and a prospective Judgeship. He is opposed, perhaps, by the public-spirited shopkeeper, who, with mortgages, long credits, tea and tobacco,—aided by a "last call" to all doubtful supporters,—incites the noble yeomanry to assert their rights as "free and independent electors." If the "natives" can overcome these prejudices of local associations, or if the lawyer's "collections" and "notes" are sufficiently diffuse, ten chances to one the greatest talker is elected, and an *improved* judicature, instead of an improved country, is the result.

Nothing would be a more powerful antidote to this

state of primitive, but not innocuous simplicity, than the transit of Railways through our agricultural districts. The civilizing tendency of the locomotive is one of the modern anomalies, which however inexplicable it may appear to some, is yet so fortunately patent to all, that it is admitted as readily as the action of steam, though the substance be invisible and its secret ways unknown to man. Poverty, indifference, the bigotry or jealousy of religious denominations, local dissensions or political demagogueism may stifle or neutralize the influence of the best intended efforts of an educational system; but that invisible power which has waged successful war with the material elements, will assuredly overcome the prejudices of mental weakness or the designs of mental tyrants. It calls for no co-operation, it waits for no convenient season, but with a restless, rushing, roaring assiduity, it keeps up a constant and unavoidable spirit of enquiry or comparison; and while ministering to the material wants, and appealing to the covetousness of the multitude, it unconsciously, irresistibly, impels them to a more intimate union with their fellow men.

Having attempted to illustrate the influence of a Railway upon a district supposed to have culminated, let us proceed to notice some of the general characteristics of the system before we apply the results of our investigations to our own particular wants.

We are not backward in importing improvements or transplanting systems *which we understand*: at the same time, those which are new to us, we have curiosity enough and distrust enough to challenge until their principles are defined—when, with the materials before him, with a particular individuality, each man arrives at his own conclusions as to the practicability of their proposed application to this country. It is to this broad principle of “common sense,” judgment, or whatever you will,

we prefer to appeal rather than to the "availability" or elasticity of statistics.

Steam has exerted an influence over matter which can only be compared to that which the discovery of Printing has exercised upon the mind. These two great discoveries,—pillars of cloud and fire which have brought us out of the mental wilderness of dark and middle ages,—have combined to supply the mind with daily food and illustrate the value of time.* Men have now virtually attained antediluvian longevity; ideas are exchanged by lightning—readers and their books travel together but little behind their thoughts—while actors, materials, scenes and scenery are shifted with the rapidity and variety of the kaleidoscope.

The extraordinary expansion of the Railway System, within the last twenty years, is to be ascribed to the improved appreciation of the Value of Time; since it is *now* universally admitted, that distances are virtually shortened in the precise ratio in which the times occupied in passing over them are diminished.

SPEED, ECONOMY, REGULARITY, SAFETY, AND CONVENIENCE,—an array of advantages unequalled—are combined in the Railway system. These we will notice separately.

The importance of **SPEED** in the transport of goods is annually increasing; even now the more valuable descriptions of merchandize take the rail in preference to the slower and cheaper route by canal; and since the cost of transport upon a Railway varies in an inverse proportion with the business of the road, it is annually becoming less, so that economy of time and economy of transport are becoming less and less antagonistical, and are approaching each other so rapidly, as to render the establishment of any line of demarcation exceedingly difficult if not impossible.

* Steam Printing.

ECONOMY.—Compared with all other land communications, their freighting capabilities may be inferred from the consideration that a horse usually draws from fifteen to thirty hundred weight on a good turnpike or macadamised road (exclusive of vehicle), four to six tons on a plate rail tram road, and fifteen to twenty tons on an edge rail including the waggon;—the friction on a level Railway being only from one-tenth to one-seventh of that upon the roads above mentioned. If this be the effect of the rail alone, it is needless to enlarge upon its power when travelled by an iron horse, with which hunger and thirst are but metaphorical terms, which knows no disease nor fatigue, and to which a thousand miles is but the beginning of a journey, and a thousand tons but an ordinary burden.

But it is in a more extended sense than the mere *cost* of transport that the economy of the Railway is vindicated. While upon the best roads travelled by horses, the cost and time of transportation increases rapidly with the distance, it is clear that there is a point from whence the transport of certain articles become unprofitable or impracticable. Milk, fruits, and vegetables, for immediate use, will not bear ten or twelve hours jolting over fifty miles of the best turnpike to reach a market; while fresh meats, fish, eggs, cattle, pigs, and poultry, lumber, staves, shingles, and firewood, and many other necessities of life, either could not afford the time or the cost of a hundred miles transport by horse power. The production of these articles, therefore, is very limited in certain districts; but wherever a Railway takes its track their extensive production becomes at once a new element of wealth, and the Locomotive a public benefactor—making “two blades of grass grow where only one grew before.” Thus the essence of a Railway system is to *increase its own traffic*, adding twenty-five per cent. to the value of every farm within fifty miles of the

track, doubling that of those near it, and quadrupling the value of timbered lands through which they pass. Railroads are in one respect more economical carriers than canals, in as much as they are both freight and toll receivers, and are therefore content with one profit.

REGULARITY.—The superior speed and safety of Railway travel over the most expeditious water communications are scarcely more important than its extraordinary regularity; to which latter circumstance it is chiefly owing that in every country the Railway has been selected for the transportation of the mails. This monopoly of mails and passengers enables them to transport goods proportionately cheaper—thus becoming powerful rivals to the most favourable water communications. From this principle of regularity, Railways in the winter season have no competitors; and, working the whole year round, without delay of lockage, wind or tide, fog, frost or rain, they, with a full business and fair “grades,” can compete with ordinary canals in price, while they can make two trips, to one on the canal, in less than half the time.

SAFETY.—The comparative safety of Railway travel with that upon steamboats is best appreciated by the reflection, that the causes which endanger human life upon the former are limited to collisions or leaving the track—both to be avoided by ordinary care; whereas in the latter, explosion, fire, collision, or wrecking, are attended with imminent risk to all, the only choice often being—the *mode* of death. Explosion of a locomotive boiler, besides being exceedingly rare, is scarcely ever attended with any danger to the lives of the passengers. The remarkable safety of well managed Railways may be further illustrated by the statement of Baron Von Reden, that upon the Railways of Germany only one person in every twelve and a quarter millions of passengers was killed or wounded from defective arrangements on the road, one in every nine millions from his own misconduct,

and one in every twenty-five millions from his own negligence. The Germans are undoubtedly a prudent people.

CONVENIENCE.—The convenience of the Railway System lies chiefly in its adaptation to its peculiar traffic :—artificial navigation is restricted to favourable ground and supplies of water, but modern improvements have enabled the Locomotive to clamber over mountains and penetrate the most remote corners of the land ; there is therefore no limit to the number of its auxiliary branches, which can be multiplied and extended until their ramifications give the required facilities to every wharf and every warehouse—to the solitary mill or factory, or to the most neglected districts as an outlet to otherwise worthless products.

We have said that Railroads, with fair grades and a full business, can compete successfully with ordinary canals. We do not mean that any Railroad can compete with canals connecting long lines of navigable waters such as we have in Canada, where the canals are of a size to prevent transshipment or the navigation so sheltered as to permit boats to be towed its entire length ; but we do believe, that wherever a transshipment is unavoidable and the Railroad is called upon to transport from one end of the canal route to the other, it will, with ordinary grades, be found the most eligible. We make this comparison assuming that a paying rate of tolls be placed upon the canals as well as on the road, and we base it upon the consideration that the road can do all which the canal would do, and a great deal which the latter would *never* do, viz., carry passengers, mails, fruits, vegetables, milk, fish, &c., which would never take the canal ; and that it would be in operation when the canal was useless. This assertion involves the capacity of Railroads, and it is not difficult to prove that a Railway would transport far more in a twelvemonth than the majority of the English or American Canals and some of

our own. It would be unfair to select such very imperfect navigations as the Rideau for a comparison, because, having no towing path the attendance of tug boats is required with every barge, or fleet of barges the lockage of which is an additional delay while its employment is a heavy expense ; and because the absurd size of the Grenville locks nullifies half the capacity of those upon the Rideau. We will therefore take the best Canal and Railroad in America, and see what they have done. The number of tons which arrived at tide water by the *Erie Canal*, was in the years

1850—1,554,675	} Total 4,863,352 tons of 2000 lbs.
1851—1,508,677	
1852—1,800,000	

On the Reading Railroad the coal alone which was brought down to tide water was, in the years

1850—1,423,977	} Total 4,679,973 tons of 2240 lbs.
1851—1,605,084	
1852—1,650,912	

The difference in estimating the tonnage gives over 300,000 tons in the three years in favor of the Railway.

The length of the Erie Canal is 363 miles—opening to the Great West.

The length of the Reading Railroad is 95 miles of double track—opening to a coal district.

The freighting capabilities of a Railroad will be better understood, by giving a short account of the road which we have just compared with the Erie Canal.

This road employs above one hundred locomotives and over five thousand freight cars ; it has six side tracks at the Delaware Terminus and seventeen wharves in that river with a double track upon each ; a storage for one hundred and ninety-five thousand tons of coal, and room for the simultaneous lading of ninety-seven vessels of seven hundred tons burthen each. Three or four engines are constantly employed in distributing cars to their

respective wharves, and the Company's principal workshop employs several hundred men. An engine upon this road has drawn one hundred and fifty iron coal wagons in one train, of one thousand two hundred and sixty-eight tons weight, over a distance of eighty-four miles in eight hours and three minutes. The cost of the road has been \$17,000,000; the gross earnings in 1852 were \$2,480,626 and the net earnings \$1,251,908. Of the gross earnings, \$2,150,677 were for freight upon coal. The actual cost of transporting coal per ton over the whole distance of ninety-four miles, including the expense of bringing back the empty cars, was *thirty-five and four-tenths cents*, or about one shilling and ninepence currency; being three and three-fourth mills per ton per mile. At this rate the cost of transport of a barrel of flour the length of the Erie Canal (363 miles) would be about sevenpence halfpenny, which is about the actual cost to the carrier on that Canal. Of course no tolls to the road are included.

We will not go so far as to say that a Railway could now compete with an established work having such wonderful advantages as the Erie Canal, but we feel confident with the present experience in these works that if the Canal were now in existence and a choice of communication were now to be made, the Railway would be selected. The lateral Canals of the State of New York it must be remembered, do not pay any dividends; the receipts and disbursements being about equal notwithstanding the great advantages which they derive from their connection with the Erie Canal. The extraordinary extent of sheltered and inland navigation in America renders the Canal system more applicable to this country than to many others, but it cannot be denied that the mania which followed the unparalleled success of the Erie Canal induced an extension of the system into districts, particularly in the more northern climates, where the Railway would have been more applicable.

It is the assertion of the best authorities and the result of the best experience, that freight and travel upon every highway are quadrupled in a remarkably short space of time by the construction of a Railway.

Canada loses every year, by the want of Railroads and a winter market, enough to construct fifty miles of Railway. If we look at the price of flour for the last six years, we will see that it has been highest in the winter months (from October to May); and we have not forgotten when in 1847, we with nearly half a million of barrels of flour for exportation in Montreal alone, were regaled with accounts of winter sales at double the usual rates, in Boston, New York, and other Atlantic ports, from which *for the want of Railways alone* we were shut out,—not even having the privilege of paying the American duty.

As soon as the Western farmer secures his crop his whole time is required to get in the new one before the frost,—for he sows fall wheat. Necessity alone makes him thrash out and take a portion of his grain to market. The winter is his idle season—then is his most convenient time for thrashing and bringing his produce to sale. The Eastern farmer sows spring wheat, but as the snow forms his best and cheapest road,—the winter is also his proper time for coming to market. The same is the case with the farmer in the back Townships who has no summer road—he must wait for the snow and frost to bring out his grain to the best advantage. The chief part of their produce, therefore, lies on their hands with that on those of the miller until the ensuing season. Our mills must therefore stand still because like the bees we are sealed up in the winter, idly consuming the fruits of our summer's industry. With a Railway we could make flour in winter of a better quality and cheaper proportionally, because we have more time, cooler weather, and cheaper transport of the wheat—while

our chances of high prices would be better and risk of souring less.

Nothing would tend more to the extension of Manufactures, particularly the numerous and valuable ones of Wood,—the only description we would for some time export,—than the existence of Railways;—nothing would more rapidly build up, what every country should have, *a home market*—place the consumer near the producer—keep our surplus population at home—promote the growth of wool, the cultivation of hemp,—the settlement of waste lands,—the employment of our unlimited water power,—and the expansion of national enterprise.

If we would *now* have manufactures, (cotton for instance,) we must lay in our winter stock of raw material in November and allow our manufactures to accumulate until April or May before they can be distributed: while in New England, the train which takes up the wool to the water power upon Monday returns with the manufactures of that wool in the same week. These quick returns beget small profits, with which under our system it is vain to attempt competition. When we consider the amount of unprofitable capital “winter killed,”—the loss of winter prices on the seaboard,—the cost of transport by waggons,—the feeding of horses, and the rate paid in the towns for a scant supply of articles, valueless in the country, we repeat again,—Canada loses by the want of Railroads and winter markets enough to build fifty miles of Railway every year!

It is the estimate of the most competent authorities, that a Railway of ordinary length draws to its support, from the inhabitants of any district through which it passes, a net income of between ten and fifteen shillings per head on the total population tributary to it. The net earnings of the Massachusetts Railways exceed sixteen shillings and threepence per head for each inhabitant of that State. The New York and Erie Railroad passes for

425 miles through a grazing country, with a population of 532,000 persons, supposed to be dependant upon it, and the estimate of net earnings per head upon this route (*founded upon the experience of those portions in operation*) is twelve shillings and sixpence per head. The area tributary to this road is twelve million of acres, and the population twenty-eight to the square mile. The area tributary to a road from Montreal to Kemptville would be in proportion,—the population as dense, the cost of construction much less per mile, the line shorter, and the “grades” far superior, as any one familiar with the two routes will acknowledge.

The articles for which the Erie Railroad is an outlet are chiefly the products of a grazing country—milk, butter, cattle, calves, sheep and pigs. Of the former article, milk, so important is the business that a special train known as the “milk-train” is run each morning for the supply of the citizens of New York, whose daily wants are thus administered to from cows feeding beyond the Shawangunk Mountains and drinking the waters which flow into the Delaware.

The little commonwealth of Massachusetts, with an area of seven thousand five hundred square miles and a population of about eight hundred thousand, has expended \$50,000,000 in building one thousand miles of Railway, the most important of which now yield to their enterprising projectors an average of seven per cent.

In July 1847, the writer published the following remarks in a newspaper article. Montreal being then not only the Metropolis of Canada, but as she still is, the first Commercial City of British North America, the writer felt that the initiative of any great public enterprize should emanate from this quarter; and as the whole question was one of such peculiar importance to her citizens as a community, he took the liberty of criticising with no unfriendly *animus* their apathy upon the subject:—

"Montreal, our beautiful capital, with all her splendid
 "buildings, noble wharves and fine steamers, is yet far
 "behind any city of her population in any part of Ame-
 "rica. It is difficult at this day to account for the apathy
 "of that city to those simple questions of improvement
 "upon which the prosperity, health and comfort of its
 "citizens depend. However satisfied they may feel
 "with their present condition, it is obvious that ere ten
 "years have passed the question of "to be or not to be"
 "must be determined by her citizens. They think ships
 "will come to Montreal, houses and rents go up and
 "flour stay up, *because* Montreal is the Seat of Govern-
 "ment. So is Washington the Seat of Government of
 "twenty millions, and yet it is not New York, Phila-
 "delphia, Baltimore, Boston, New Orleans, Cincinnati,
 "Buffalo, or Albany, all of which without being National
 "Seats of Government, (yet not without Railroads) are
 "far ahead of Washington. Toronto, *since* the removal
 "of the seat of Government from that place, has improv-
 "ed more rapidly than ever, and Kingston has not; be-
 "cause with cities (as with men) there must be some
 "*inherent* properties upon which their success will de-
 "pend, and which *must be intrinsic* in order that they
 "may not be diverted. Toronto has a back country, but
 "Kingston has not; the former depends upon her farmers
 "in the rear,—the latter upon the commerce, which
 "anchors alone retain in her harbour. And now what
 "are Montreal's advantages? On the north and south
 "shores of the St. Lawrence, and to the westward be-
 "tween the Ottawa and the St. Lawrence, lies a country
 "as rich as America can boast of,—but where is Mon-
 "treal? Upon an Island,—an *island* to this hour. The
 "Capital of Canada can be approached from the
 "wealthiest and best half of the Province, at two seasons
 "of the year, only by *scows* breaking the ice before them.
 "On the south shore a miserable flat bar Railway has

“been in operation for several years, but its Terminus is
 “nine miles from that city;—constructed because the
 “nature of the ground seemed to invite the experiment,
 “upon the cheapest principle, and depending upon the
 “curiosity of strangers for its support, the only Railway
 “using Locomotives in Canada is enabled by high fares
 “to pay a respectable dividend to its proprietors. How
 “long will this last?

“The St. Lawrence and Atlantic Railway is a much
 “more important project to the inhabitants of Montreal,
 “inasmuch as it will pass for upwards of one hundred
 “miles through an agricultural country, naturally depend-
 “ing upon Montreal for its supplies. But this road can-
 “not be brought *into the City*, and must be but an
 “imperfect means of supplying its wants. Its hopes are
 “more upon the “through” trade and travel. As an
 “outlet however for the agricultural productions of the
 “districts through which it passes, and as a means of
 “supplying the city with firewood, vegetables, fruits and
 “articles, which without a Railway would not reach the
 “market, *and as a means of promoting manufactures* it
 “will be successful beyond a doubt. This trade, the
 “Railroad makes for itself,—will always keep, and be
 “the means of increasing.

“The Lachine is the last of the projected Railways
 “about Montreal; this will be soon in operation and in its
 “present shape *must prove a failure*; the sooner the
 “better as thereby there will be a strong interest enlisted
 “in the extension of this road to Upper Canada, as the
 “*only* means of procuring a profitable return. The
 “Lachine Road will be a failure *because the route is too*
 “*short* and the expense very great. The cost of furnish-
 “ing and managing will be as great as for a road ten
 “times its length, while only one-tenth of the fare can be
 “exactd. The cab fare to the Montreal Terminus will
 “be, (in addition to the fare on the cars) as much as

“coach fare direct to Lachine; and as the difference in
 “time, between the train and a coach, will be confined
 “to a few minutes, (the Corporation of Montreal compel-
 “ling slow speed through the town for Locomotives,) the
 “Company must always compete with the inordinate
 “number of public conveyances in that city for less than
 “an hour’s drive over an excellent road,—or drive them
 “off by low and unprofitable fares. The expense of land
 “damages, fencing and stock for this road must run up
 “the cost per mile proportionally very much higher than
 “upon roads of greater length and through less valuable
 “property.”

“But as a means of supplying the City, no route can
 “be projected which will be able to compete with the
 “extension of the Lachine Railroad toward Prescott.
 “Thousands of pounds worth of firewood, butter, eggs,
 “milk, vegetables, fruits, poultry and live stock of every
 “kind, would reach the city daily, which will *never reach*
 “it without a Railway. Instead of milk and water, bad
 “butter and stale vegetables, we would have pure milk,
 “taken from cows fifty miles in the country at five in the
 “morning, delivered in the City for our breakfast,—the
 “price of fresh butter, vegetables and firewood reduced,
 “and a constant supply received. We would not see, as
 “in last December, three feet wood scarce at 30s. per
 “cord, because nature was lazy in building her bridge
 “over the waters which surround Montreal. The value
 “of property (within the Island) along the route would
 “be increased fourfold, and farms fifty miles distant
 “would be placed in a better position than those which
 “are now ten miles off; while the increased activity
 “given to business in the city by the Railway, would
 “keep up rents, and business men, particularly in the
 “present unhealthy season (July), could have their dwell-
 “ings ten or twenty miles out of town, where the differ-
 “ence in rents, supplies and other advantages, would

"more than compensate them for the Railway fare in
 "and out daily, and the half hour's time on the road.

"This road could be located so as to do the business
 "of the Ottawa River and Bytown, (destined to be the
 "third or fourth city of Upper Canada.) The Ottawa
 "steamboat navigation is imperfect and tedious. The
 "lumber trade on that river, employing a capital of
 "£500,000 annually, is of the highest importance; the
 "constant through travelling of the lumberer would be a
 "great source of profit to the road. If Montreal, the
 "natural market of Bytown and the Ottawa, does not
 "exert herself, the latter will make no great effort to
 "avoid a connection with Ogdensburgh, which can be
 "done in less than half the distance to Montreal."

Since the above was written the Lachine Railway has
 failed and revived;—the Champlain Railway has been
 rebuilt with heavy rail and extended right and left;—the
 St. Lawrence and Atlantic has been opened for one
 hundred miles and its construction aided by the City of
 Montreal;—the Seat of Government has been removed;
 —and lastly the people of Montreal have seen with a
 vengeance "the connection between the trade and
 politics of a country."

Perhaps the design of that article (which was to ad-
 vocate a road from Montreal to Toronto) was considered
 too extensive, but the inference which it was hoped
 would be drawn was that it ought at once to *be com-
 menced by the extension of the Lachine Road such a
 distance only as would be warranted for the supply of
 Montreal* without reference to Western trade or travel.
 We wished to shew that a city like Montreal with a
 population of 60,000 inhabitants, *required* as an indis-
 pensable addition, a Railway in *some direction* of at least
 fifty miles in length, penetrating a good agricultural

country for the supply of the daily wants of her own citizens, and one communicating *directly with the city at all seasons of the year*. That it was a disgrace to such a city—the Metropolis—to remain in her insular position where it could be avoided, (the bridge at St. Eustache was not then built,) and that the Railways on the south shore would ever be unsatisfactory, because their ferries were too long,—at certain seasons of the year there would be no intercourse, and at all seasons, delay, risk, and transhipments. That although the partial failure of the Lachine Road as projected was unavoidable, its construction was to be hailed as an earnest that one Corporation would be compelled in self-defence to take the course so necessary to the well-being of the city.

With the power of extension we believe the Lachine Road will become one of the first Railway stocks in Canada;—while as a minister to the daily wants of an increasing population, and large foreign and coasting fleets, it would have never failing sources of wealth, if all foreign help should fail. As Montreal is the largest city in the Province,—so long as it continues so a Railroad terminating within the city limits must do the largest *local* business of any road in Canada. But the most important advantage which the first Corporation leading from Montreal westward will enjoy over the more remote ones, is that a large amount of the earnings of the road will be upon *freight of a local character, which will either not bear long transportation or pays a higher rate than products of the same description from the interior can afford*.

The following is an estimate from the best authorities, of the value of the annual consumption of articles of country produce, *by the inhabitants* of the city of New York, for 1841:—

Fresh Beef.....	1,470,000
" veal.....	365,000
Fresh mutton and lamb.....	385,000
Fresh pork.....	600,000
Poultry, game and eggs, &c.....	1,000,000
Vegetables and fruits.....	1,200,000
Butter, cheese and lard.....	1,500,000
Flour, meal and other breadstuffs.....	3,000,000
Hay and oats.....	750,000
Firewood and coal, (exclusive of steamboat fuel.)...	2,500,000
Salted beef, pork and hams.....	1,200,000
Milk.....	1,000,000
Not enumerated, &c.....	680,000
	15,500,000

During the six months ending Sept. 30th, 1843, 2,991,161—say 3,000,000—quarts of milk were furnished to the city of New York, from the first fifty miles of the New York and Erie Railroad, when that work came into operation, at a price 33 per cent. less than former rates : this of course reduced the price of the whole consumption of 16,000,000 of quarts, from six cents to four cents—thus effecting a saving to the city upon this article alone of £80,000 per annum.* The consumption of these articles of country produce amounts to about \$50 (£12 10s.) per head of the population of New York.

Now we believe the inhabitants of Montreal eat and drink as much per head as their leaner brethren in the good city of Gotham. It has been charged against us by our rectangular cousins,—that we have been too much inclined to waste our substance in riotous living ;—that one evil arising from our Colonial position is an inclination to imitate our rich relations upon the other side of the Atlantic—in ostentatious hospitality—in lugging harlequin footmen around the streets for the amusement of children or the admiration of Iroquois, instead of “footing it” ourselves—and in making our stomachs a disputed territory between wine and Caledonia water,—pastry and blue pills,—“hot-stuff” and soda. If however

* The quantity supplied by this road in 1847, exceeded seven millions of quarts.

we consume more than we really require, it is to be hoped that prudence and patriotism will induce to us imitate the temperance and frugality of those New Englanders who live within their incomes and invest their surplus in Railways or manufactures.

We think, however, we will be safe in assuming the annual consumption of country produce for Montreal, as above described, to be £10 per head yearly, which is twenty per cent less than it is in New York: this will make the annual value of the city's consumption (assuming the population at 60,000) amount to £600,000.

Now, we have seen that upon one article alone, milk, the saving effected by fifty miles of Railway amounted to 33 per cent.—and there is no good reason to doubt that a similar saving was effected in the other items of consumption. But we are rather chary of estimates, and think none will quarrel with us if we say that five per cent., at least, would be the reduction effected upon the cost of *all* these articles to the city of Montreal by the extension of a Railroad, from the St. Antoine suburbs fifty miles into a good agricultural region. This would amount to an annual saving of £30,000—a sum which would pay ten per cent. upon the cost of such a road!

Some sanguine persons would place the saving at two, three or four times this amount: we dare not say what we think, nor need we do so, for we feel confident that it only requires to be viewed in this light to force an universal acknowledgment of its importance. We may be accused of exaggeration in having said that *Canada* loses annually, by her want of Railroads and a winter market, enough to build fifty miles of Railway: no apology for this opinion will be necessary if it be admitted that *Montreal* alone could save annually enough to pay the interest upon so much road.

If Montreal aspires to rival New York in the trade of the West she *must* offer equal facilities. The value of

time is becoming daily more and more appreciated. A Western Canadian merchant from Perth or Bytown, can now reach New York from Prescott or Kingston in 30 hours in the month of March, and make his purchases to be shipped by the first opening of the navigation,—or he can receive weekly supplies of the lighter or more valuable articles by Railroad from Boston or New York,—when he would not risk his neck or his health, *staging it* for days to Montreal at a season when it would be impossible to bring goods out of this beleagured city.

Railroads have changed the usual system of doing business. Many Western dry goods merchants have abandoned the old method of laying in spring and fall supplies. Weekly invoices of goods are brought in by the Railroad,—quick returns are made,—the newest patterns are secured,—no dead stock is allowed to accumulate,—and the saving in time, in interest, in depreciation and loss from too large or unsuitable a stock, more than compensates for any extra cost of transport by Railway—a mode which is known to be preferable for certain descriptions of merchandize.

In conclusion—as a people we may as well in the present age attempt to live without books or newspapers, as without Railroads. Continuous Railways from tide water to Huron upon the north side of the St. Lawrence, we *must* have, and as they will be the work of years we should lose no time in commencing them. It is instructive to view the grounds upon which these projects are undertaken in countries where their operation is understood. In projecting the Petersburg and Shirley Railroad, in Massachusetts, the “friends of the enterprise” take up the townships through which the road would pass, and thus “calculate:”—

“Townsend has 7,000 acres of wood and timber land, averaging from forty to fifty cords per acre. After supplying fuel for home consumption, we estimate the actual

"growth to be equal to one cord for every three and a half acres, per annum, which will be 2,000 cords for market, exclusive of sawed lumber and ship timber.

"The north easterly part of Shirley, the north part of Lunenburg and the west part of Pepperell, together with the towns of Brookline, Mason and Ashby, have an aggregate of wood and timber land, nearly or quite three times as large as that in Townsend, and quite as heavily covered.

"The town of Sharon has now a steam mill that cuts one million feet of sawed lumber annually. This town and Temple, having large quantities of wood land, and being too far from a depôt at West Townsend for the transport of wood, will therefore do the coal business that is now done in the towns below them—and this branch of business will furnish at least three thousand tons of transport to the road annually.

"It is a well known fact that the towns of New Ipswich, Temple, Mason, and Ashby, are rich in agricultural resources, and will supply much tonnage of produce to the road. It is not unfrequent for farms in Mason to grow 1000 bushels of potatoes each (weighing about $37\frac{1}{2}$ tons), for the starch factory in Wilton, present average prices about twenty-two cents per bushel. This article could be transported to West Townsend much easier than to their present market, and the average price in Boston is such as to command this business.

"The manufacturing interest in this section is also well known to be somewhat extensive. The present transport of casks of all kinds from Townsend to Boston is \$6,750 annually. Brookline has this branch of business to nearly the same amount of freight, and both of these towns have much unimproved water power, and great facilities for brick making, much of which is in the immediate line of the contemplated road."

How much unimproved water power have we in Canada? Have we no farms which grow 1000 bushels of potatoes each? no saw-mills cutting 1,000,000 feet per annum? The writer knows one establishment in Canada which cuts more than 10,000,000 feet annually. There is a large growing trade along the whole extent of our Frontier in this article,—which we can produce *ad libitum*, and the whole value of which is from labour applied here. Our exports of sawed lumber to the United States in 1852, exceeded one hundred and twenty millions of feet:—Railroads alone will bring out the distant reserves of this article.

Have we no facilities for brickmaking, or do we still continue to import bricks from England as we did a few years since? The truth is,—men have starved upon the richest soils and in the finest climes, as in India, Ireland, or Mexico, while the children of the “Pilgrim Fathers” have grown rich from their granite, their wood, and their ice:—they see “sermons in stones,” and wealth in shoe-pegs at two dollars a bushel. The chief elements of the extraordinary success of the Americans are such as we in a great measure possess, although we have obtained them too recently to have yet experienced their effects, viz., the control of our own trade,—and *facility of association*,—hitherto hampered by legislative requirements at every step.

The habit of association in New England, (for there it has become a *habit*, as we trust it will soon be here), is the prominent instrument in their prosperity. In a mistaken love of sole proprietorship, (in imitation of the wealth of the Mother Country), we either do not move at all in a promising enterprise because the investment is beyond our reach, or we place our necks in the halter by borrowing to such an extent that the first “pull up” invariably produces strangulation. If we would but contemplate the almost illimitable powers of association for

manufacturing or commercial purposes, compared with the largest individual efforts, we would be forced to acknowledge the existence within ourselves of a mine of wealth and power, unheeded now, but which, if relieved from the pressure of indifference and incredulity, will expand into useful activity. In a town of but moderate population the humble mechanic may have his house lighted with gas and supplied with water—luxuries which the seigneur in his lordly country mansion cannot aspire to.

Perhaps the most striking instance of great results from small contributions is the penny post ;—but everywhere examples meet us—in the news-room,—in public baths,—and even in the factories of New England, many of which are owned by the operatives and small farmers.

Mr. W. Harding, in his “Facts bearing on the Progress of the Railway System,” read before the British Association in August, 1848, says :

“No limit can be assigned to the number of travellers which cheapening and quickening the means of conveyance will create. The introduction of the Railway, even where Steamboats already afforded a most pleasant, rapid, and cheap communication, increased the number of travellers (between Glasgow and Greenock) from 110,000 to 2,000,000—2,000,000 being *five times* the population of the district. In 1814 the number of passengers per annum between Glasgow and Paisley was only 10,000. In 1842 the number was upwards of 900,000 :—the *population* during this period has only doubled itself, while the *traffic* has multiplied itself ninety-fold—that is to say, for every journey which an inhabitant of Glasgow or Paisley took in 1814, he took forty-five journeys in 1843..... The Railway System has doubled itself in three years. The importance and value of the traffic in goods and *cattle*, relatively to the passenger traffic, have become more apparent..... Whatever falling off in divi-

dends there may have been is to be attributed to *the capitalization* of loans and the creation of fictitious capital by the purchase of Railways at premiums, and therefore at sums beyond what they cost."

In 1836 Massachusetts became a Stockholder to the extent of \$1,000,000 in the Western Road, and by three subsequent Acts issued State scrip for \$4,000,000 more, for the same object. The city of Albany gave for the same purpose \$890,425—the amount subscribed by private Stockholders only being one-third of the cost of the road. Georgia, Michigan, Delaware, States all inferior to Canada, have been equally liberal. They could not wait for the overflowing of accumulated capital, to seek out these projects. They considered the State "but one wide extended charity to aid, protect and benefit each other"—the patron of the public good. Massachusetts looked upon the Western road as a State work; and upon the interest of the people at large as paramount to any individual or corporate ones which might desire this work. Canada must so consider Railways from her seaport to the heart of her Western territory. The towns and cities on the route contain sufficient commercial intelligence and wealth to lend their credit for a large portion of the stock, and if the agricultural interests hold back, their representatives should be further appealed to. An hundred thousand pounds may be obtained by pledging the honour and the industry of a corporate town, where five thousand could not be spared by the *individuals* composing that town;—because the interest only will be required,—of the burden of which the road upon completion will relieve them, and at the same time undertake the extinguishment of the principal.

Upon the same principle with still less inconvenience, the Canadian people at large, through their Government, may with equal propriety and benefit, procure the means for constructing any eligible line of Railway, by paying,

for two or three years, the deficient interest on its cost. But it is highly desirable that wealthy individuals and corporate towns and bodies should take the lead and management. The Government stand ready under the late Act to second their efforts—and we have no doubt would advance a step further to meet private action, rather than see a deserving project fall to the ground.

The Act of Parliament above alluded to has since been repealed. Its benefits have been confined to the Trunk Line—the County of Simcoe—and a portion of the Eastern Townships.

It remains to be seen whether the “North Shore,”—the Ottawa,—Peterborough and Stanstead interests, can obtain the same Provincial aid as has been accorded to Sherbrooke and Simcoe.

We cannot any longer *afford* to do without Railroads. Their want is an actual tax upon the industry and labour of the country. Men may talk, says an eminent New Englander, about the burden of taxes to build Railroads, but the tax which *the people pay* to be without them is an hundred fold more oppressive.

Our unoccupied routes have in themselves a value—but until there are charters, organization, and a fitting spirit and appreciation of Railways shewn, there is nothing to attract the passing capitalist.

The readiness with which the Upper Canada Municipalities have taxed themselves within the last two years, is highly creditable to their intelligence, and a proof that self-taxation for local improvements is not considered a burden. Port Hope, with a population of 2500, has subscribed £50,000 to her Railway—taxing herself nearly \$10 per annum on each person. Toronto has given £100,000 to the Guelph Road and £50,000 to the Simcoe and Huron Line. There must be something in a system which induces towns and counties to make

such *apparent* sacrifices;—but the truth is that taxation for Railway purposes is in every sense a highly profitable investment. A county subscribes £1000 or £1500 for every mile of the road within its boundaries. By this means it secures the importation of double this sum *to be expended* within that county. Every man soon feels that of the vast expenditure of money called for by the Railway, a portion finds its way into his pocket, which is many times greater than the Railway tax he consents to pay. The great bulk of the cash expended on Railways *here*, must be imported—and by getting the charters—by organizing the Companies and taking stock as far as our means allow, we lay the foundation of a property destined to increase in value annually—and one which, while it is of inestimable benefit in a thousand direct and indirect ways to ourselves is also one which capitalists are eager to take up and complete.

Lastly—we are placed beside a restless, early-rising, “go-a-head” people,—a people who are following the sun Westward, as if to obtain a greater portion of daylight:—*we* cannot hold back—we must tighten our own traces or be overrun—we must *use* what we have or *lose* what we already possess—capital, commerce, friends and children will abandon us for better furnished lands unless we *at once* arouse from our lethargy; we can no longer afford to loiter away our winter months, or slumber through the morning hours. Every year of delay but increases our inequality, and will prolong the time and aggravate the labor of what, through our inertness, has already become a sufficiently arduous rivalry; but when once the barriers of indifference, prejudice and ignorance are broken down,—no physical or financial obstacle can withstand the determined perseverance of intelligent, self-controlled industry.

APPENDIX.

What Railroads do for the Farmers.

To understand the usefulness and value of our railroads it must be borne in mind, that by far the greater part of our people and a much greater portion of the territory of the United States is devoted to *agriculture*, and that the markets for the products are either a narrow belt of country lying immediately upon the sea coast, and extending north from Baltimore,—or in Europe; and that consequently, the whole surplus product of the interior has to be sent to the *sea coast*. We have no interior markets, which can only be supplied by the existence of large manufactories, or commercial cities or communities. The surplus of the Southern States is cotton; in the Northern States, corn, wheat, and domestic animals. All these articles must be sent from 50 to 1,000 miles to market, as the case may be; and where the production is so enormous as it is in this country, it is easy to see that an immense traffic must be thrown upon all the avenues connecting the interior with the sea coast.

From the difficulty of constructing good *earth* roads, the economic limit to transportation, is confined upon such, to a comparatively few miles, depending of course upon the *kind* of freight and character of the roads. Upon the *average* of such ways, the cost of transportation is not far from 15 cents per ton per mile, which may be considered as a sufficiently correct estimate for the whole country. Estimating at the same time the value of wheat at \$1 50 per bushel, and corn at 75 cents, and that 33 bushels of each are equal to a ton, the value of the former would be equal to its cost of transportation for 330 miles, and the latter, 165 miles. At these respective distances from market, neither of the above articles would have any commercial value, with only a common *earth* road as an avenue to market.

But we find that we can move property upon railroad at the rate of $1\frac{1}{2}$ cents per ton per mile, or for one-tenth the cost upon the ordinary road. These works therefore extend the economic limit of the cost of transportation of the above articles to 3,300 and 1,650 miles respectively. At the limit of the economical movement of these articles upon the *common* highway, by the use of railroads, wheat would be worth \$44 50, and corn \$22 27 per ton, which sums respectively

would represent the actual increase of value created by the interposition of such a work.

The following table will show the amount saved per ton, by transportation by railroad over the ordinary highways of the country :

STATEMENT showing the value of a ton of wheat, and one of corn, at given points from market, as effected by cost of transportation by railroad, and over the ordinary road.

	Transportation by railroad.		Transportation by ordinary highway.	
	Wheat.	Corn.	Wheat.	Corn.
Value at market.....	\$49 50	\$24 75	\$49 50	\$24 75
10 miles from market.....	.49 35	24 60	48 00	23 25
20 " ".....	.49 20	24 45	46 50	21 75
30 " ".....	.49 05	24 30	45 00	20 25
40 " ".....	.48 90	24 15	43 50	18 75
50 " ".....	.48 75	24 00	42 00	17 25
60 " ".....	.48 60	23 85	40 50	15 75
70 " ".....	.48 45	23 70	39 00	14 25
80 " ".....	.48 30	23 55	37 50	12 75
90 " ".....	.48 15	23 40	36 00	11 25
100 " ".....	.48 00	23 25	34 50	9 75
110 " ".....	.47 85	23 10	33 00	8 25
120 " ".....	.47 70	22 95	31 50	6 75
130 " ".....	.47 55	22 80	30 00	5 25
140 " ".....	.47 40	22 65	28 50	3 75
150 " ".....	.47 25	22 50	27 00	2 25
160 " ".....	.47 10	22 35	25 50	75
170 " ".....	.46 95	22 20	24 00	00
180 " ".....	.46 80	22 05	22 50	
190 " ".....	.46 65	21 90	21 00	
200 " ".....	.46 50	21 75	19 50	
210 " ".....	.46 35	21 60	18 00	
220 " ".....	.46 20	21 45	16 50	
230 " ".....	.46 05	21 30	15 00	
240 " ".....	.45 90	21 15	13 50	
250 " ".....	.45 75	21 00	12 00	
260 " ".....	.45 60	20 85	10 50	
270 " ".....	.45 45	20 70	9 00	
280 " ".....	.45 30	20 55	7 50	
290 " ".....	.45 15	20 40	6 00	
300 " ".....	.45 00	20 25	4 50	
310 " ".....	.44 85	20 10	3 00	
320 " ".....	.44 70	19 95	1 50	
330 " ".....	.44 55	19 80	00	

The above table is chiefly valuable in this connection in showing that, from want of domestic markets, and cost of transportation upon ordinary roads, the whole surplus products of the interior must, of necessity, be thrown upon railroads, which fact sufficiently guarantees a large business to them.

There is no other country in the world where an equal amount of labor produces an equal bulk of freight for railroad transportation. One reason is that the great mass of our products is of a coarse, bulky character, of very low comparative value, and consisting chiefly of

the products of the soil and forest. We manufacture very few high priced goods, labor being more profitably employed upon what are at present more appropriate objects of industry. The great bulk of the articles carried upon railroads, is grains, cotton, sugar, coal, iron, live stock, and articles of a similar character. The difference between the value of a pound of raw and manufactured cotton is measured frequently by dollars, yet both may pay the same amount of freight. Wheat, corn, cattle, and lumber, all pay a very large sum for transportation in proportion to their value.—*Railway Journal*.

What they do for Land Owners.

Not only have the railroads largely increased the radius of the country which pours its produce into the city marts, but they have diffused the city population over a larger surface, in both ways creating the traffic on which the stockholders rely for profits on their investments. Boston affords a case in point; the increase of its population in the ten years ending in 1851 having been sixty-five per cent., while that of seven towns, each within five miles of the city, and accessible by railroad, was eighty-one per cent. Great as is the increase of passenger traffic on all the railways, it is exceeded in proportion by the increase of freights. In this respect the experience of Massachusetts tallies with that of South Carolina and with that of the Erie Railroad.

The advance in the value of land in the vicinity of railroad lines, is another very beneficial result of their construction. This is nowhere more marked than on the Illinois Central road where lands which had so long remained unsold at the Government minimum price have realized \$15 per acre, and others which have been sold at \$2 and \$3, now readily obtain purchasers at \$6 and \$9.

In comparing roads running through strictly agricultural districts in this country and in England, we are struck with the immense disparity of cost. Thus, while the Southern Michigan line, 245 miles in length, was put into operation at an expenditure of but about \$20,000 per mile, the Eastern Counties line, an English road, 322 miles in length, including branches, cost the enormous amount of \$200,000 per mile, or ten times as much for the English as for the American line, while the receipts of the latter in September last were \$113,215 against \$300,005 for the English road.—*Railway Times*.

How they have Competed with the Erie Canal.

Note.—1852 was the first year in which Railroads were allowed to compete with the New York Canals.

A very gratifying feature in the business of the Canal, as represented by the above figures, is the almost incredible increase in the tonnage of some of these articles of heavy freight, particularly railroad iron, in which article there is an increase of 56,866,837 lbs. But while there is a handsome increase in heavy freight, it will be noticed that such goods as are mostly carried by railroad, exhibit a falling off from last year's figures.

A very natural question arises here as to the cause of the annual falling off in the tonnage of that kind of property which has hitherto been one of the most prolific sources of revenue. That the quantity of high-toll goods moving westward, is rapidly increasing annually, cannot be denied. The only reason, then, that the quantity passing by the Canal is decreasing, must be that other modes of transportation are deemed more favorable, as involving less expense, either in time or money, or both—Among other articles of up-freight, such as sugar, iron, steel and merchandize, there has been a slight increase from the figures of 1851, while there has been a decrease in molasses, coffee, nails, spikes, crockery and glassware to a considerable extent. In down freight, in flour, beef, butter, cheese, wool and sundries, there has been a decrease, which is, however, easily accounted for.

It will be seen that the Central Railroad have transported an immense quantity of these articles of produce which have decreased on the Canal. They have carried 75,099 bbls. of flour, nearly 10,000 bbls. of beef, and over 3,000,000 pounds of butter during the year.

BUFFALO AND ROCHESTER RAILROAD.—The following table shows the leading articles carried by the Buffalo and Rochester Railroad going beyond Rochester, and principally destined for Albany and New York, during the year 1852:—

Flour, bbls.	75,099	Wheat, bush.	8,850
Pork "	4,649	Corn "	3,499
Beef "	8,208	Oats "	
Ashes "	529	Barley "	1,798
Whiskey "	4,461	Rye "	2,824
Leather, rolls	3,029	Butter, lbs.	3,018,300
Hides, No.	16,814	Cheese "	563,950
Hogs, live	111,659	Lard "	515,650
" dressed	14,609	Tallow "	49,000
Horses, No.	592	Bacon "	1,383,000
Cattle "	14,606	Wool, bales	19,763
Sheep "	9,440	Pelts "	2,706

The following table exhibits the local trade of the Buffalo and Rochester Railroad, during the year 1852 :—

Flour, bbls.	6,238	Wheat, bush.	66,679
Pork "	1,264	Corn "	9,153
Beef "	493	Oats "	695
Ashes "	1	Barley "	6,877
Whiskey "	2,653	Rye "	
Leather, rolls	244	Butter, lbs.	22,100
Hides, No.	1,386	Cheese "	149,300
Hogs, "	555	Lard "	64,640
Cornmeal, bbls.	30	Tallow "	19,750
Horses, No.	85	Bacon "	89,750
Cattle "	268	Wool, bales	97
Sheep "	10	Pelts "	615

During 1851, this road carried 38,220 tons of freight each way, and during the past year 1852, they have transported nearly 100,000 tons. The freight earnings of the road for the months of November and December 1852, exceed those of the same period in 1851, by about \$78,791,191. The exact number of tons shipped, and the tons landed it has been impossible to procure separately.

There are some interesting facts noticable in the table of articles carried by this road. For instance, in dairy products it will be seen that the railroad has carried three times as much butter as has been sent forward by canal, and the same may be said of cheese, lard, tallow, &c., the holders of those articles of produce preferring that they should reach an early market even at higher rates of freights. It will also be noticed, that immense quantities of live stock have been transported by the railroad; also flour and other articles. During the present season, the attempt has been made at transporting dressed hogs from the west to the east, to be packed in the latter market, and large quantities have been sent on, but we fear, from the mildness of the season, that those engaged in the enterprise have lost by the operation.

How Railroads catch Fish.

(From Mr. W. Harding's "Progress of the Railway System.")

This traffic is of the greater importance, as it gives a positive addition to the supply of food in the country, and is therefore of great national benefit. Railways stimulate the production, or economise the cost of production, of grain, meat, and other articles of food; *but all fish that can be carried inland, is so much added to the resources of the country.*—In this respect, Railways have done much and can do more, both for the supply of food to the country, and for the promotion of the fisheries.

This traffic is very remunerative and does not bring less than 10s. per ton. The gross tonnage of fish carried on the English Railways may be reckoned as 70,000 tons; or, on the lowest computation, the food of as many individuals. Fresh fish, meat, butter, fruit, &c., cannot be brought from great distances except by Railway. Milk is now largely carried on the Eastern Counties and other Railways, under arrangements by which the companies can bring back the empty cans.

What they do for the Graziers and Drovers.

The following are the proportions of cattle, &c., carried on British Railways:—

	Cattle.	Sheep.	Swine.	Receipts.
1845.....	236,000	1,200,000	550,000	£102,000
1846.....	370,000	1,250,000	850,000	167,200
1847.....	500,000	2,000,000	*390,000	183,400

* Falling off caused by Irish famine.

The total number of horses carried in 1847 was 99,405 and the receipts £80,216.

Taking the saving by conveyance of cattle on Railways at 40 lbs. per beast, 8 lbs. for sheep, and 20 lbs. for swine, the gross saving in 1847 will be 43,800,000 lbs. of animal food.

Large quantities of dead meat reach the London market by Railway from the country:—it comes in excellent condition from *Scotland*. By means of Railways, great quantities of hind quarters of mutton are sent up from the country,—as the butchers there kill large quantities of sheep and sell the fore quarters at home amongst their own population,—sending the hind quarters by Railway to London. It is the general opinion of butchers that country killed meat is better than town killed meat. It is ordered and sold by telegraph, and is not damaged by the journey, even in hot weather.—*Evidence given in late Report on Smithfield Market.*

The Ogdensburgh Railroad.

Memorandum of Arrivals and Receipts of Freight at Ogdensburgh (by water) from opening of navigation to Friday, 31st Dec., 1852:—

Corn.....	413,237 bush.
Oats.....	53,082 “
Wheat.....	751,896 “
Flour.....	795,022 bbls.
Beef.....	10,569 “
Pork.....	4,300 “

Arrival of vessels,.....	505
American vessels,.....	334
Canada vessels,.....	171
Total,.....	505
Arrivals in 1851,.....	209
Increase in 1852,.....	296
American Flour,.....	585,022 bbls.
Canadian do,	210,000 "
American Wheat,.....	410,429 bush.
Canadian do,	841,287 "
Total amount of grain received,.....	1,218,018 bush.
Value of Merchandize entered in bond from Canada in 1852,.....	\$771,603
From Canada in 1851,.....	115,286
Increase in 1852,.....	\$656,317
Amount of tonnage transported over Railroad from Canada,.....	48,050 tons.

The New York and Erie Railroad.

Statement of the principle articles received at the Port of Dunkirk, by Lake, in the District of Buffalo Creek during the year 1852, as reported to the Collector at this port :—

	Quantity.	Value.
Flour, bbls.....	182,139	\$819,625
Pork.....	6,643	112,931
Beef.....	8,989	89,890
Whiskey.....	1,983	19,830
Seed.....	1,608	16,080
Eggs.....	4,045	40,450
Fish.....	1,197	9,575
Ashes.....	292	6,205
Cranberries	500	5,000
Oil.....	229	1,185
Corn Meal.....	337	1,011
Hides.....	1,300	3,900
Leather, rolls.....	1,490	178,800
Wheat, bush.....	22,320	20,088
Corn.....	45,069	27,041
Oats.....	8,012	1,825
Butter, lbs.....	1,761,150	317,007
Cheese.....	727,800	44,468
Lard.....	248,200	24,820
Tallow.....	82,750	8,275
Bacon, casks.....	2,800	140,000
Lumber, ft.....	92,000	1,104
Staves.....	1,300	3,900

	Quantity.	Value.
Wool, bales.....	4,796	359,700
Hemp.....	330	6,600
Cattle, No.....	1,206	60,300
Sheep.....	4,910	12,275
Horses.....	153	15,300
Hogs, live.....	14,805	117,660
Furs.....	1,022	153,300
Coal, tons.....	2,738	10,952
Tobacco, hhds.....	1,265	105,920
" bbls.....	184	
" boxes.....	508	

The total value of articles received at the Port of Dunkirk, for the year ending Dec. 31, 1852, was \$3,274,756.

The Railroads of the United States.

By the tabular statement annexed, it will be seen that there are 13,315 miles of railroad in operation in the United States, and 12,029 in progress against 21,693 in operation and in progress in 1852, showing an increase of the former of 1500 miles, and the latter of 11,500 miles, viz:

STATES.	No of miles in operation.	No. of miles in progress.	Total.
Maine.....	394	111	505
New Hampshire.....	500	42	542
Vermont.....	427	..	427
Massachusetts.....	1140	66	1206
Rhode Island.....	50	32	82
Connecticut.....	627	198	825
New York.....	2123	924	3047
New Jersey.....	254	85	339
Pennsylvania.....	1244	903	2147
Delaware.....	16	11	27
Maryland.....	521	..	521
Virginia.....	624	610	1234
N. Carolina.....	249	248	497
S. Carolina.....	599	296	865
Georgia.....	857	691	1548
Florida.....	23	..	23
Alabama.....	236	728	1023
Mississippi.....	65	875	970
Louisiana.....	63	200	263
Texas.....	32	..	33
Tennessee.....	135	509½	694½
Kentucky.....	94	661	755
Ohio.....	1385	1755	3140
Indiana.....	755	679	1734
Michigan.....	427	..	427
Illinois.....	269	1772	2068
Missouri.....	..	515	515
Wisconsin.....	50	470	520
Total.....	13,815	12,029	25,343

Table showing the population of the several States, and the number of inhabitants in each to one mile of railroad.

	Miles of railroad.	Population.	Area.	Square miles to each m. of R. R.	Inhabitants to 1 m. of R. R.
Maine	505	583,188	30,280	59.9	1165
New Hampshire.....	542	317,964	9,000	16.6	587
Vermont	427	314,120	10,212	23.9	736
Massachusetts.....	1206	994,499	7,800	6.4	83
Rhode Island.....	82	147,544	1,306	18	1799
Connecticut.....	825	370,791	4,674	5.6	449
New York.....	3,047	3,097,349	46,000	176.4	1016
New Jersey.....	339	480,553	8,320	24.5	1417
Pennsylvania.....	2147	2,311,786	46,000	21.6	1076
Delaware.....	27	91,535	2,120	78.5	33903
Maryland.....	521	583,035	9,356	18.4	11477
Virginia.....	1234	1,421,664	61,352	49.6	1152
North Carolina.....	499	868,903	45,000	90.5	1748
South Carolina.....	895	668,507	23,505	27.4	747
Georgia.....	1548	904,996	58,000	37.4	585
Florida.....	23	87,401	59,268	257.6	3800
Alabama.....	964½	771,971	50,722	53.6	800
Mississippi.....	1023	600,555	47,156	46	587
Louisiana.....	263	517,739	46,431	176.4	1968
Texas.....	32	212,592	237,321	7416	6643
Tennessee.....	694½	1,002,625	45,608	65.6	1443
Kentucky.....	755	982,405	37,680	50	1304
Ohio.....	3154	1,980,408	39,964	12.7	628
Michigan.....	427	397,654	56,243	131.7	9312
Indiana.....	1734	988,415	33,809	19.5	570
Illinois.....	2068	851,470	55,405	26.0	411
Missouri.....	515	682,033	67,380	138	12345
Wisconsin.....	520	805,091	53,924	10.4	589

The two statements immediately preceding will convey a pretty accurate idea of the probable extent to which the construction of railroads will be eventually carried in the United States. The state having the greatest number of miles in proportion to its area and population is Connecticut. This state has no large cities, and its people are either engaged in manufacturing or agriculture. There can be no reason why all portions of the eastern states, possessing an equally dense population, should not eventually have an equal number of miles of railroad in proportion.

Among the western states Ohio stands pre-eminent, having one mile of railroad to a little more than twelve square miles of territory, and to 638 inhabitants. This state will probably soon lead all others in the extent of railroads, if not to the ratio they will sustain to area and population.—*Railroad Journal*.

On the 1st of January, 1853, there were in the United States, 13,227 miles of completed Railroad, 12,928 miles of Railroad in various stages of progress, and about 7000 miles in the hands of the

Engineers, which will be built within the next three or four years—making a total of 33,155 miles of Railroad, which will soon traverse the country, and which at an average cost of \$30,000—(a well ascertained average) for each mile of road, including equipments, &c., will have consumed a capital amounting to \$994,650,000 as follows:—

18,227 miles completed.....	\$396,810,000
12,928 miles in progress.....	387,840,000
7000 miles under survey.....	210,000,000
33,155 Total.....	\$994,650,000

or in round numbers \$1,000,000,000, one billion of dollars, a sum which at 6 per cent., would yield \$60,000,000 annually, or more than sufficient to cover all the expenses of the United States Government, and of the Governments of every state composing the United States! —if administered with Republican economy.—*Hunt's Magazine.*

What the Locomotive can do.

As to the power of overcoming high grades, we claim to have taught a lesson to the world. During the whole of the past summer, this company carried the United States Mail over a grade of 530 feet to the mile, without the aid of assistant power, and every bar of iron which was laid upon the track, between the Kingswood Tunnel and Fairmount, was passed over the same.

The summit of the hill is about three hundred feet above the level of the permanent track at the tunnel, and the grade varies from 293 to 340 feet to the mile, permitting each engine to carry up two loaded cars or 25 tons. At Kingswood tunnel the temporary road ascended a grade of 530 feet to the mile, and only one car or 12½ tons was the load of the engine.—*Baltimore and Ohio R. R. Rep.*

THE STRAWBERRY TRADE.—During fifteen days in the month of June last nearly one million baskets of strawberries were brought to this city over the Ramapo and Paterson railroad, and Jersey City ferry. Most of these were gathered in a district of about eight miles square, contiguous to the Ramapo road. Estimating that they were sold at the average rate of four cents a basket, the return must have been about \$40,000.

The Railroads of Canada.

	Miles completed.	Miles under construction.	Miles chartered.	Total.
Montreal and Lachine.....	8	—	—	8
Champlain and St. Lawrence to Rouse's Point..	43	—	—	43
Rawdon and Industry.....	—	20	—	20
St. Lawrence and Atlantic.....	95	31	—	126
Montreal and New York, to Moor's Corners.....	32	—	—	32
Quebec and Richmond.....	—	100	—	100
Quebec and Trois Pistoles.....	—	—	140	140
Ottawa and St. Lawrence Grand Junction.....	—	—	115	115
Montreal to Kingston, } Main.....	—	—	170	170
Kingston to Toronto, } Trunk.....	—	—	165	165
Prescott and Bytown.....	—	54	—	54
Peterborough and Port Hope.....	—	—	27	27
Peterborough and Cobourg.....	—	—	27	27
Grand Junction—				
Peterboro' to Belleville.....	—	—	60	60
" Gloucester Bay.....	—	—	90	90
" Toronto.....	—	—	75	75
Ontario, Simcoe and Huron—				
Toronto to Lake Huron.....	27	66	—	100
Toronto and Sarnia—				
Toronto to Guelph.....	—	47	—	47
Guelph to Stratford.....	—	—	40	40
Stratford to Sarnia.....	—	—	75	75
Toronto and Hamilton.....	—	—	40	40
Great Western—				
Hamilton to London.....	—	76	—	76
London to Detroit.....	—	104	—	104
Hamilton to Niagara river.....	—	42	—	42
London to Sarnia.....	—	—	60	60
Junction to Galt.....	—	13	—	13
Galt to Guelph.....	—	—	16	16
Buffalo and Goderich—				
Buffalo to Brantford.....	—	75	—	75
Brantford to Stratford.....	—	—	40	40
Stratford to Goderich.....	—	—	43	43
Erie and Ontario—				
Niagara to Chippawa.....	—	—	20	20
Total.....	205	628	1208	2043